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24 October 1951

## MEMORANDUM FOR THE RECORD

SUBJECT: Discussion with Signal Corps about Field Marking Equipment, Drop Zone and Night Landing.

1. [ ] Chief of the Applied Physics Section, Special Projects Branch, Signal Corps, and [ ] assistant, were contacted 15 October 1951.

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2. Both [ ] seemed well informed in the field of fluorescent and phosphorescent materials. The Signal Corps has an active interest in the subject. They are doing work along these lines in their own laboratories and they have liaison connections with industrial organizations which produce the material. They rely on these industrial companies to a great extent.

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3. Several landing area and drop zone marking methods were suggested:

a. The Signal Corps has developed portable infra-red signal lamps which operate from storage batteries. They require a special viewing device in the aircraft; but it was said that it would be easy to produce a viewing device similar to a radar scope, which could be mounted in the pilot's compartment. Thus, the pilot would not have to peer through a gadget which covers his eyes.

b. Signal lamps SE-11 could be used as a beacon and/or runway lights. This lamp is a 5-cell flashlight with a deep red filter. It is visible but a short distance with the unaided eye, but it can be seen 2½ miles or more at night when it is viewed through a red filter. The filter is merely a piece of red cellophane (or other transparent material), and it may be attached to a small portion of the aircraft windshield with scotch tape. The Signal Corps will give us several of these Signal Lamps and some red filter so we may try them ourselves.

c. Ultra-violet activated fluorescent material may be feasible for use as an aid in landing an aircraft or as a drop zone marker. It was felt that it would be feasible to spread

the powdered material

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the powdered material along the landing pathway or in a manner to indicate a drop zone. Another method would be to distribute the material by spraying it in liquid form on any available, suitable surface. The fluorescent material could be activated by a strong U.V. source on the aircraft or by a small hand-operated source on the ground. The Signal Corps will determine the best available fluorescent material for our purposes and will obtain a quantity of the material for us. They will also provide us with a portable hand-operated U.V. source.

4. Several general points were brought out in the discussion:

a. To be effective at a given distance, luminous material should cover an area wide enough and large enough to be actually seen as an object at the given distance. In the absence of any intensifying mechanism, luminous material is not bright enough to serve as a point light source.

b. From a security standpoint, it was felt that ordinary phosphorescent material would be inferior to ultra-violet or infra-red systems.

5. For future action, this Branch plans to test the samples of fluorescent materials and the Signal Lamps when we obtain them. All testing and planning for future activity will be coordinated with the Applied Physics Branch.

  
Chemical Branch  
Research & Development

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SD/RE - 2

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